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LAHIVE & COCKFIELD, LLP/THE MATHWORKS
FLOOR 30, SUITE 3000
One Post Office Square
Boston, MA 02109-2127

EXAMINER
ALVESTEFFER, STEPHEN D

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/809,152	EDSON ET AL.
	Examiner	Art Unit	
	Stephen Alvesteffer	2175	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2009*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10,12-36,38-50 and 52-59* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1,3-10,12-36,38-50 and 52-59* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Request for Continued Examination (RCE) filed June 29, 2009. Claims 1, 30, 44, and 59 are amended. Claims 2, 11, 37, and 51 were previously cancelled. Claims 1, 3-10, 12-36, 38-50, and 52-59 remain pending.

Claim Objections

Claims 30 and 50 are objected to because of the following informalities:

- In claim 30, "and is configured to be interactive with the software **device and;**" should be corrected to –and is configured to be interactive with the software **device;**–

- In claim 50, "an analysis object is **provided adapted** to communicate" has a grammatical error.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-6, 25, 28, 56, and 59 are rejected under 35 U.S.C. 102(b) as being

anticipated by Johnson et al. (hereinafter Johnson), United States Patent Application

Publication number 2003/0001896.

Regarding claim 1, Johnson teaches a computer readable storage medium

storing computer executable instructions that when executed on a processor manage a

graphical interface, the medium storing:

instructions for providing a graphical interface, a hardware device and a software

device being accessible through the graphical interface, the software device being

accessible to a computer (see paragraph [0125]; *"a graphical user interface (GUI) may*

be displayed which presents information for guiding the user in specifying a

measurement task. The measurement task may involve a simple measurement using a

single instrument or device, or may comprise a complex measurement operation using

a plurality of measurement devices. In one embodiment, at least one of the plurality of

measurement devices may comprise a measurement hardware device. In another

embodiment, at least one of the plurality of measurement devices may comprise a

virtual measurement device");

instructions for providing at least one interactive hardware object accessible to

the computer, where the hardware object represents the hardware device and is

depicted in the graphical interface, the hardware object interacting with the hardware

device (see Johnson paragraph [0099]; *"the graphical icon that visually represents the*

node represents the function, and the underlying program instructions and/or data

structures which are represented by the node graphical icon are actually performing the

function. Thus the specification and claims of the present application refer generally to a

node performing a function, it being understood that the node includes or represents

underlying program instructions and/or data structures which are executed by a

processor (or programmable hardware element) to perform the function");

instructions for providing a software object, wherein the software object is

representative of the software device, where the software object is depicted in the

graphical interface and is configured to be interactive with the software device (see

paragraph [0255]; *"Upon execution of the graphical program, the node may receive the*

measurement task specification as input, invoke an expert system to analyze the

measurement task specification and generate a run-time specification for the

measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12";

see also paragraph [0107]; *"The run-time builder may also provide various parameters*

to hardware and/or software resources or devices comprised in the system to configure

the hardware and/or software devices in the system according to the run-time

specification to allow these devices to be used during execution of the run-time 790. In

other words, the run-time builder 780 may configure one or more measurement devices

according to the run-time specification 770");

instructions for receiving, from a user, a plurality of configurations of the

hardware device, each configuration allowing the user to edit at least one property of

the hardware object (see Figure 26 and paragraph [0138]; *"the GUI may display a third*

panel, e.g., a channel configuration panel, which presents options for specifying values

of one or more parameters for the indicated channel(s)");

instructions for displaying the plurality of configurations simultaneously, wherein

each configuration corresponds to a unique hardware object that represents the

hardware device (see Johnson Figure 26 and paragraph [0138]; *"the GUI may display a*

third panel, e.g., a channel configuration panel, which presents options for specifying

values of one or more parameters for the indicated channel(s)"; see also Johnson

paragraph [0012]; *"The GUI may receive user input characterizing the measurement*

task, where the user input indicates values for a plurality of parameters of the

measurement task. For example, the parameters may include five or more of

measurement type, device type, channel parameters, sampling parameters, trigger

parameters, clock parameters, scaling parameters, synchronization parameters, routing

parameters, and data publishing parameters");

instructions for receiving, from a user, a selection of one configuration from the

plurality of configurations (Johnson Figures 19 and 20); and

instructions for communicating with the hardware device corresponding to the

selected configuration using the selected configuration (Johnson Figures 19 and 20).

Regarding claim 3, Johnson teaches providing an analysis object, wherein said

analysis object is adapted to communicate with at least one of said hardware object and

said software object for analysis of data from at least one of said hardware object and

said software object (see paragraph [0255]; *"Upon execution of the graphical program,*

the node may receive the measurement task specification as input, invoke an expert

system to analyze the measurement task specification and generate a run-time

specification for the measurement task in response to the analyzing, as shown in 750

and 770 of FIG. 12").

Regarding claim 4, Johnson teaches instructions for receiving code for

execution by the hardware object (see Johnson paragraph [0099]; "*underlying program*

instructions and/or data structures which are executed by a processor (or

programmable hardware element...").

Regarding claim 5, Johnson teaches that a plurality of hardware objects are

provided for a single hardware device (see paragraph [0100]; Johnson's invention

allows several different types of nodes to be created to accomplish various

measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 6, Johnson teaches that a plurality of hardware objects are

provided for a plurality of hardware devices. (see paragraph [0100]; Johnson's invention

allows several different types of nodes to be created to accomplish various

measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 25, Johnson teaches that the graphical interface is

implemented with an extensible API (see Johnson paragraph [0158]).

Regarding claim 28, Johnson teaches that the graphical interface is adapted to

operate on a plurality of operating systems (see Johnson paragraph [0053]; Although

Johnson does not specify exactly which operating systems or exactly how many

operating systems his invention supports, it is inherent and well-known in the art that

software code is capable of executing on more than one different operating system).

Regarding claim 56, Johnson teaches that the hardware object enables communication between the graphical interface and the hardware device, and the software object enables communication between the graphical interface and the software device (see paragraph [0125]; *"a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device"*).

Regarding claim 59, Johnson teaches a computer readable storage medium storing computer executable instructions that when executed on a processor manage a graphical interface, the medium storing:

instructions for providing a graphical interface, at least one hardware device and one software device being accessible through the graphical interface (see paragraph [0125]; *"a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of*

measurement devices may comprise a virtual measurement device"), the graphical

interface being updated in response to a change in the hardware device or the software

device (see Johnson Figure 26 and paragraph [0242]; *"parameters specific to the*

selected device may be configured in this panel. In this example, logic parameters

related to the PCI-MIO-16E-1 device are shown, including high/low state levels, idle line

state, and idle state pattern. Of course, when other devices are selected, other

corresponding parameters and controls may be presented");

instructions for providing a plurality of hardware objects accessible to the

computer, where each of the hardware objects represents a hardware device and is

depicted in the graphical interface, each hardware object configured to be interactive

with the hardware device (see paragraph [0099]; *"the graphical icon that visually*

represents the node represents the function, and the underlying program instructions

and/or data structures which are represented by the node graphical icon are actually

performing the function. Thus the specification and claims of the present application

refer generally to a node performing a function, it being understood that the node

includes or represents underlying program instructions and/or data structures which are

executed by a processor (or programmable hardware element) to perform the function");

instructions for providing a plurality of software objects, each representative of a

software device accessible to the computer, where each of the software objects is

depicted in the graphical interface and is configured to be interactive with the software

device (see paragraph [0255]; *"Upon execution of the graphical program, the node may*

receive the measurement task specification as input, invoke an expert system to

analyze the measurement task specification and generate a run-time specification for

the measurement task in response to the analyzing, as shown in 750 and 770 of FIG.

12"; see also paragraph [0107]; "*The run-time builder may also provide various*

parameters to hardware and/or software resources or devices comprised in the system

to configure the hardware and/or software devices in the system according to the run-

time specification to allow these devices to be used during execution of the run-time

790. In other words, the run-time builder 780 may configure one or more measurement

devices according to the run-time specification 770");

instructions for providing a plurality of configurations of the hardware object, each

configuration allowing the user to edit at least one property of the hardware object (see

Figure 26 and paragraph [0138]; "*the GUI may display a third panel, e.g., a channel*

configuration panel, which presents options for specifying values of one or more

parameters for the indicated channel(s)");

instructions for displaying the plurality of hardware objects and the plurality of

software objects and at least one of the plurality of configurations of one of the

hardware objects or one of the software objects to a user in a single graphical interface

simultaneously (see Johnson Figure 16, Figure 29 showing "Voltage" drop-down, and

paragraph [0136; "*the GUI may display a second panel, e.g., a channels selection*

panel, which presents a list of available devices and corresponding channels. The

available devices may correspond to the indicated measurement type. For example, if

the selected measurement type were voltage, the devices listed may be those devices

available to the system which are suitable for measurement a voltage. An example of

the device and channel list is shown in FIG. 16");

instructions for receiving, from a user, a selection of one configuration from the

plurality of configurations (see Johnson paragraph [0103]; *"In one embodiment, the run-*

time specification 770 may comprise a specification of the parameters of one or more

measurement primitives, where each measurement primitive comprises a software

object and corresponding configuration settings, and where each measurement

primitive is operable to implement at least a portion of the measurement task"); and

instructions for communicating with the hardware device corresponding to the

selected configuration using the selected configuration (see Johnson paragraph [0103];

"the run-time specification 770 may be useable to configure one or more measurement

devices to perform the measurement task, and may be further useable to generate a

run-time 790 which is executable to perform the measurement task using the configured

one or more measurement devices").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 7, 8, and 12-14 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Johnson (2003/0001896) *supra* and Fuller, III et al. (hereinafter

Fuller), United States Patent Application Publication number 2003/0035008.

Regarding claim 7, Johnson teaches every limitation of claim 7 except

instructions for scanning for available hardware; and instructions for creating an

additional hardware object for each hardware device detected and not already

associated with a hardware object. Fuller teaches a method and apparatus for

controlling an instrumentation system that automatically scans for available hardware

(instruments) and allowing users to select hardware (instruments) from a list of detected

hardware (instruments) (see paragraph [0020], *"the computer system may automatically*

detect the one or more message-based instruments that are connected to the computer

system. In other words, the computer system may automatically scan for message-

based instruments coupled to the system"). It would have been obvious to a person of

ordinary skill in the art at the time the invention was made to combine the scanning for

available hardware of Fuller with the invention of Johnson in order to allow custom

hardware components to be added to the system.

Regarding claim 8, Johnson/Fuller teaches all the steps of claim 8 except that

instructions for scanning involves instructions for receiving user-defined commands to

be sent to the hardware device to attempt to identify the hardware device. Fuller

teaches allowing the user to initiate a hardware scan. A user-initiated hardware scan is

being interpreted with the broadest reasonable interpretation to be the same as sending

user-defined command to a hardware device (see paragraph [0020], *"A user interface*

(UI) may be provided that allows the user to initiate a scan for message-based

instruments. The user may scroll through and select an instrument from a list of

detected instruments, or may otherwise specify a particular instrument to be

communicated with"). It would have been obvious to a person of ordinary skill in the art

at the time the invention was made to combine the user-initiated hardware scan of

Fuller with the invention of Johnson in order to allow custom hardware components to

be added to the system on demand.

Regarding claim 12, Johnson/Fuller teaches every limitation of claim 12 except

that at least one of instructions for providing at least one hardware object and providing

at least one software object further comprises instructions for accessing at least one of

a hardware object and a software object located on a remote computer. Fuller teaches

that tasks associated with hardware instruments may be created and made accessible

on a web site (see paragraph [0168]; *"Tasks may be collected and organized for*

distribution, for example through a website"). It would have been obvious to one of

ordinary skill in the art at the time the invention was made to combine the invention of

Fuller with the invention of Johnson in order to allow measurement or testing over a

network.

Regarding claim 13, Johnson/Fuller teaches every limitation of claim 13 except

that instructions for accessing is performed through a web page. Fuller teaches that

tasks associated with hardware instruments may be created and made accessible on a

web site (see paragraph [0168]; *"Tasks may be collected and organized for distribution,*

for example through a website"). It would have been obvious to one of ordinary skill in

the art at the time the invention was made to combine the invention of Fuller with the

invention of Johnson in order to allow measurement or testing over a network.

Regarding claim 14, Johnson/Fuller teaches every limitation of claim 14 except

that instructions for accessing is performed over a network. Fuller teaches that tasks

associated with hardware instruments may be created and made accessible on a web

site (see paragraph [0168]; "*Tasks may be collected and organized for distribution, for*

example through a website"). It would have been obvious to one of ordinary skill in the

art at the time the invention was made to combine the invention of Fuller with the

invention of Johnson in order to allow measurement or testing over a network.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Johnson (2003/0001896) *supra* and Hsiung et al. (hereinafter Hsiung), United States

Patent Application Publication number 2003/0083756.

Regarding claim 9, Johnson teaches all the elements of claim 9 except that the

analysis object filters data. Hsiung teaches a system for monitoring industrial

components with an analysis component that performs filtering (see paragraph [0056];

"*The upload process takes data from the acquisition device and uploads them into the*

main process manager 314 for processing. Here, the data are in electronic form. In

embodiments where the data has been stored in data storage, they are retrieved and

then loaded into the process. Preferably, the data can be loaded onto workspace to a

text file or loaded into a spread sheet for analysis. Next, the filter process 302 filters the

data to remove any imperfections"). It would have been obvious to one of ordinary skill

in the art at the time the invention was made to combine the filtering of data of Hsiung

with the invention of Johnson for the purpose of providing data analysis functionality.

Regarding claim 10, Johnson teaches all the elements of claim 10 except that

the analysis object plots data. Hsiung teaches a system for monitoring industrial

components with an analysis component that performs plotting of data (see paragraph

[0058]; "*A baseline correction process may also find response peaks, calculate ΔR/R,*

and plot the ΔR/R verses time stamps, where the data have been captured"). It would

have been obvious to one of ordinary skill in the art at the time the invention was made

to combine the plotting of data of Hsiung with the invention of Johnson for the purpose

of providing data analysis functionality.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson

(2003/0001896) *supra*, Fuller (2003/0035008) *supra*, and Hsiung (2003/0083756)

supra.

Regarding claim 15, Johnson/Fuller teach every limitation of claim 15 except

that instructions for accessing is performed by passing commands over the network in a

MATLAB environment. Hsiung teaches using MATLAB in association with the invention

(see paragraph [0534]; "*Multi-way PCA is a natural choice since PCA is already*

included, algorithms are available for evaluation in Matlab toolboxes, and the technique

serves as a good benchmark when discussing benefits of other algorithms"). It would

have been obvious to one of ordinary skill in the art that the MATLAB environment could

be used as taught by Hsiung with the invention taught by Johnson/Fuller.

Claims 16, 17, and 27 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Johnson (2003/0001896) *supra* and Schmit et al. (hereinafter

Schmit), United States Patent Application number 2003/0004670.

Regarding claim 16, Johnson teaches every limitation of claim 16 except

instructions for modifying at least one of the hardware object and the software object.

Schmit teaches a system and method for building a measurement system in which the

most efficient protocol to use with each measurement device is determined and applied

(see Schmit paragraph [0500]). It would have been obvious to one of ordinary skill in

the art at the time the invention was made to combine the hardware protocol selection

system of Schmit with the invention of Johnson for the purpose of making the

measurement system more efficient.

Regarding claim 17, Johnson/Schmit teaches that modifying specifies a protocol

for use by the hardware object for communication with the hardware device (see Schmit

paragraph [0500]).

Regarding claim 27, Johnson/Schmit teaches instructions for generating an

analysis object that can be used in SIMULINK (see Johnson paragraph [0101];

Johnson's invention makes use of the LabVIEW environment for generating analysis

objects; see also Schmit paragraph [0619]; Schmit teaches that SIMULINK is similar in

function to LabVIEW).

Claims 18-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Johnson (2003/0001896) *supra*, Hsiung (2003/0083756) *supra*, and Pike et al.

(hereinafter Pike), United States Patent Application Publication number 2003/0056018.

Regarding claim 18, Johnson/Hsiung teaches every limitation of claim 18 except

that modifying modifies a value stored in an array of an array-based environment. Pike

teaches a system for linking users to control instruments wherein an array-based

environment can be used to change the properties of the control instruments (see Pike

paragraph [0010]; *"The user may also create an object array in response to an array*

creation command. The object array includes as elements, a first and a second

instrument object. The user may change the properties of the first and second

communication channels by changing properties of the object array"; see also Pike

paragraph [0070]; *"The array-based environment 104 includes functions used by the*

user 30 to create an instrument object 108 through function calls 46, as well as to

configure an instrument object's properties and to connect the instrument object with

one of the control instruments 22"). Pike further teaches that the graphical user

interface can be used to export data to an array-based environment such as MATLAB

(see paragraph [0040]; *"User 30 may send a list of requests or commands to processor*

20 from the GUI 14 to establish a communication channel between the computer 12 and

the control instruments 22. The user 30 does so by writing a user program 80, which

resides in memory 26 of computer 12. The user program 80 may be associated with the

syntax of, for example, any interpreted programming environment. An interpreted

programming environment may be any proprietary program that performs mathematical

computations for modeling, simulation, graphics, or data analysis related to control

instruments, among many others. An example of an interpreted programming

environment is MATLAB.RTM. from MathWorks, Inc., of Natick, Mass"). It would have

been obvious to a person of ordinary skill in the art at the time the invention was made

to combine the array-based environment steps of Pike with the measurement systems

of Johnson/Hsiung in order to provide array-based control of the measurement devices.

Regarding claim 19, Johnson/Hsiung/Pike teaches instructions for modifying a

value stored in an array of an array-based environment, thereby modifying at least one

of the hardware object and the software object (see Pike paragraphs [0010], [0070], and

[0040]).

Regarding claim 20, Johnson/Hsiung/Pike teaches instructions for exporting

data from the graphical interface to an array-based environment (see Pike paragraphs

[0010], [0070], and [0040]).

Regarding claim 21, Johnson/Hsiung/Pike teaches instructions for converting

user actions with the graphical interface into code (see Pike paragraphs [0010], [0070],

and [0040]; Pike teaches converting user actions with the graphical interface into

interpreted programming code capable of performing mathematical computations for

modeling, simulation, graphics, or data analysis related to control instruments).

Regarding claim 22, Johnson/Hsiung/Pike teaches that the code is created in a

MATLAB environment (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches

converting user actions with the graphical interface into interpreted programming code

capable of performing mathematical computations for modeling, simulation, graphics, or

data analysis related to control instruments).

Regarding claim 23, Johnson/Hsiung/Pike teaches that the code comprises

steps to create an analysis object, configure the analysis object and write and read data

from the analysis object (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches

converting user actions with the graphical interface into interpreted programming code

capable of performing mathematical computations for modeling, simulation, graphics, or

data analysis related to control instruments).

Regarding claim 24, Johnson/Hsiung/Pike teaches that the code comprises an

analysis routine (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches

converting user actions with the graphical interface into interpreted programming code

capable of performing mathematical computations for modeling, simulation, graphics, or

data analysis related to control instruments).

Regarding claim 26, Johnson/Hsiung/Pike teaches instructions for generating

an analysis object so that the analysis object can be used in MATLAB (see Pike

paragraph [0040]).

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson

(2003/0001896) *supra* and Phathayakorn et al. (hereinafter Phathayakorn), United

States Patent number 5,986,653.

Regarding claim 29, Johnson teaches every limitation of claim 29 except that

the graphical interface comprises a tree view, wherein the tree view groups the

hardware objects and the software objects by a functionality characteristic. Tree views

of hardware and software objects grouped by functionality were a well-known graphical

user interface technique at the time the invention was made. Phathayakorn shows

selecting a functional group of objects from a tree view graphical representation (see

Figures 2A-5B). It would have been obvious to one of ordinary skill in the art at the time

the invention was made to apply the tree view graphical representation of Phathayakorn

to the invention of Johnson in order to provide a representation of the devices on the

user interface.

Claims 30-33, 36, 44-47, 50, 57, and 48 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Johnson (2003/0001896) *supra* and Gray et al. (hereinafter

Gray), United States Patent 6,185,491.

Regarding claim 30, Johnson substantially teaches a method for managing an

interface, the method comprising:

providing a graphical interface that provides interaction with an array-based

environment, a hardware device and a software device being accessible through the

graphical interface, the software device being accessible to a computer (see paragraph

[0125]; *"a graphical user interface (GUI) may be displayed which presents information*

for guiding the user in specifying a measurement task. The measurement task may

involve a simple measurement using a single instrument or device, or may comprise a

complex measurement operation using a plurality of measurement devices. In one

embodiment, at least one of the plurality of measurement devices may comprise a

measurement hardware device. In another embodiment, at least one of the plurality of

measurement devices may comprise a virtual measurement device");

providing at least one hardware object accessible to the computer, where the

hardware object represents the hardware device and is depicted in the graphical

interface, the hardware object configured to be interactive with the hardware device

(see paragraph [0099]; *"the graphical icon that visually represents the node represents*

the function, and the underlying program instructions and/or data structures which are

represented by the node graphical icon are actually performing the function. Thus the

specification and claims of the present application refer generally to a node performing

a function, it being understood that the node includes or represents underlying program

instructions and/or data structures which are executed by a processor (or

programmable hardware element) to perform the function");

providing at least one software object, representative of the software device,

where the software object is depicted in the graphical interface, and is configured to be

interactive with the software device (see paragraph [0107]; *"The run-time builder may*

also provide various parameters to hardware and/or software resources or devices

comprised in the system to configure the hardware and/or software devices in the

system according to the run-time specification to allow these devices to be used during

execution of the run-time 790. In other words, the run-time builder 780 may configure

one or more measurement devices according to the run-time specification 770") and;

updating the graphical interface when the hardware object or the software object

are changed in the array-based environment (see Gray, addressed below); and

displaying the hardware object and the software object to a user (see Johnson

Figure 16 and paragraph [0136; "*the GUI may display a second panel, e.g., a channels*

selection panel, which presents a list of available devices and corresponding channels.

The available devices may correspond to the indicated measurement type. For

example, if the selected measurement type were voltage, the devices listed may be

those devices available to the system which are suitable for measurement a voltage. An

example of the device and channel list is shown in FIG. 16").

Johnson does disclose updating the graphical interface when the hardware

object or the software object are changed in the array-based environment. Gray

teaches a vehicle having networked components connected in an array in which if one

component is removed, the graphical interface will be updated to reflect that the

component is no longer connected to the array (see Gray column 7 lines 36-46; "*When*

a device is detected as having been removed, the device interface, previously received

from the device is removed from memory (1420) and the data structure is updated to

remove the device entries (1430)."). It would have been obvious to one having ordinary

skill in the art at the time the invention was made to allow users to physically remove

components from the system and to update the graphical interface to reflect the

changes as taught by Gray in the invention of Johnson so that it would be intuitive to

add or remove components to the system.

Regarding claim 31, Johnson/Gray teaches receiving code for execution by the

hardware object (see paragraph [0255]; "*Upon execution of the graphical program, the*

node may receive the measurement task specification as input, invoke an expert system

to analyze the measurement task specification and generate a run-time specification for

the measurement task in response to the analyzing, as shown in 750 and 770 of FIG.

12").

Regarding claim 32, Johnson/Gray teaches that at least one additional

hardware object is provided for the hardware device (see paragraph [0100]; Johnson's

invention allows several different types of nodes to be created to accomplish various

measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 33, Johnson/Gray teaches that additional hardware objects are

provided for a plurality of hardware devices (see paragraph [0100]; Johnson's invention

allows several different types of nodes to be created to accomplish various

measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 36, Johnson/Gray teaches providing an analysis object

adapted to communicate with at least one of the hardware object and the software

object (see Johnson paragraph [0099]; *"underlying program instructions and/or data*

structures which are executed by a processor (or programmable hardware element...").

Regarding claim 44, Johnson/Gray teaches a computing device comprising:

an array-based environment (see Gray column 7 lines 36-46; *"When a device is*

removed from its bus connection (1400), the vehicle control center detects that a device

previously installed is no longer connected (1410)", the bus connection is the same as

an array-based environment);

a storage medium for storing and a processor for processing (see Johnson claim

41; *"a processor; and a memory medium..."*);

a graphical interface, at least one hardware device and one software device

being accessible through the graphical interface (see paragraph [0125]; "*a graphical*

user interface (GUI) may be displayed which presents information for guiding the user in

specifying a measurement task. The measurement task may involve a simple

measurement using a single instrument or device, or may comprise a complex

measurement operation using a plurality of measurement devices. In one embodiment,

at least one of the plurality of measurement devices may comprise a measurement

hardware device. In another embodiment, at least one of the plurality of measurement

devices may comprise a virtual measurement device");

a plurality of hardware objects accessible to the computer, where each of the

hardware objects represents a hardware device and is depicted in the graphical

interface, each hardware object configured to be interactive with the hardware device

(see paragraph [0099]; "*the graphical icon that visually represents the node represents*

the function, and the underlying program instructions and/or data structures which are

represented by the node graphical icon are actually performing the function. Thus the

specification and claims of the present application refer generally to a node performing

a function, it being understood that the node includes or represents underlying program

instructions and/or data structures which are executed by a processor (or

programmable hardware element) to perform the function");

a plurality of software objects, each representative of a software device

accessible to the computer, where each of the software objects is depicted in the

graphical interface and is configured to be interactive with the software device (see

paragraph [0255]; "*Upon execution of the graphical program, the node may receive the*

measurement task specification as input, invoke an expert system to analyze the

measurement task specification and generate a run-time specification for the

measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12";

see also paragraph [0107]; "*The run-time builder may also provide various parameters*

to hardware and/or software resources or devices comprised in the system to configure

the hardware and/or software devices in the system according to the run-time

specification to allow these devices to be used during execution of the run-time 790. In

other words, the run-time builder 780 may configure one or more measurement devices

according to the run-time specification 770"); and

a display device to display the plurality of hardware objects and the plurality of

software objects and at least one configuration of one of the hardware objects or one of

the software objects to a user in a single graphical interface simultaneously (see

Johnson Figure 16, Figure 29 showing "Voltage" drop-down box, and paragraph [0136;

"*the GUI may display a second panel, e.g., a channels selection panel, which presents*

a list of available devices and corresponding channels. The available devices may

correspond to the indicated measurement type. For example, if the selected

measurement type were voltage, the devices listed may be those devices available to

the system which are suitable for measurement a voltage. An example of the device

and channel list is shown in FIG. 16"), wherein the plurality of hardware objects and the

plurality of software objects are accessible through both the array-based environment

and the graphical interface (see Gray column 7 lines 36-46; "*When a device is detected*

as having been removed, the device interface, previously received from the device is

removed from memory (1420) and the data structure is updated to remove the device

entries (1430).").

Regarding claim 45, Johnson/Gray teaches that the system receives code for

execution by the hardware objects (see paragraph [0255]; "*Upon execution of the*

graphical program, the node may receive the measurement task specification as input,

invoke an expert system to analyze the measurement task specification and generate a

run-time specification for the measurement task in response to the analyzing, as shown

in 750 and 770 of FIG. 12").

Regarding claim 46, Johnson/Gray teaches that a plurality of hardware objects

are provided for a single hardware device (see paragraph [0100]; Johnson's invention

allows several different types of nodes to be created to accomplish various

measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 47, Johnson/Gray teaches that a plurality of hardware objects

are provided for a plurality of hardware devices (see paragraph [0100]; Johnson's

invention allows several different types of nodes to be created to accomplish various

measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 50, Johnson/Gray teaches that an analysis object is provided

adapted to communicate with at least one of the hardware objects and the software

objects (see Johnson paragraph [0099]; "*underlying program instructions and/or data*

structures which are executed by a processor (or programmable hardware element…").

Regarding claim 57, Johnson/Gray teaches that the hardware object enables

communication between the graphical interface and the hardware device, and the

software object enables communication between the graphical interface and the

software device (see paragraph [0125]; "*a graphical user interface (GUI) may be*

displayed which presents information for guiding the user in specifying a measurement

task. The measurement task may involve a simple measurement using a single

instrument or device, or may comprise a complex measurement operation using a

plurality of measurement devices. In one embodiment, at least one of the plurality of

measurement devices may comprise a measurement hardware device. In another

embodiment, at least one of the plurality of measurement devices may comprise a

virtual measurement device").

Claim 58 recites a computing device having substantially the same limitations as

the method of claim 57. Therefore, claim 58 is rejected under the same rationale.

Claims 34, 35, 38, 48, 49, and 52 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Johnson (2003/0001896) *supra*, Gray (6,185,491) *supra*, and Fuller

(2003/0035008) *supra*.

Regarding claim 34, Johnson/Gray teaches every limitation of claim 34 except

scanning for available hardware; and creating an additional hardware object for each

hardware device detected and not already associated with a hardware object. Fuller

teaches a method and apparatus for controlling an instrumentation system that

automatically scans for available hardware (instruments) and allowing users to select

hardware (instruments) from a list of detected hardware (instruments) (see paragraph

[0020], "*the computer system may automatically detect the one or more message-based*

instruments that are connected to the computer system. In other words, the computer

system may automatically scan for message-based instruments coupled to the

system"). It would have been obvious to a person of ordinary skill in the art at the time

the invention was made to combine the scanning for available hardware of Fuller with

the invention of Johnson/Gray in order to allow custom hardware components to be

added to the system.

Regarding claim 35, Johnson/Gray teaches all the steps of claim 35 except that

scanning involves instructions for receiving user-defined commands to be sent to the

hardware device to attempt to identify the hardware device. Fuller teaches allowing the

user to initiate a hardware scan. A user-initiated hardware scan is being interpreted

with the broadest reasonable interpretation to be the same as sending user-defined

command to a hardware device (see Fuller paragraph [0020], "*A user interface (UI) may*

be provided that allows the user to initiate a scan for message-based instruments. The

user may scroll through and select an instrument from a list of detected instruments, or

may otherwise specify a particular instrument to be communicated with"). It would have

been obvious to a person of ordinary skill in the art at the time the invention was made

to combine the user-initiated hardware scan of Fuller with the invention of Johnson/Gray

in order to allow custom hardware components to be added to the system on demand.

Regarding claim 38, Johnson/Gray teaches every limitation of claim 38 except

that at least one of providing at least one hardware object and providing at least one

software object further comprises accessing at least one of a hardware object and a software object located on a remote computer. Fuller teaches that tasks associated with hardware instruments may be created and made accessible on a web site (see paragraph [0168]; "*Tasks may be collected and organized for distribution, for example through a website*"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the invention of Fuller with the invention of Johnson/Gray in order to allow measurement or testing over a network.

Claims 48, 49, and 52 recite a system with substantially the same limitations as claims 34, 35, and 38, respectively. Therefore, the claims are rejected under the same rationale.

Claims 39, 40, 43, 53, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra*, Gray (US 6,185,491) *supra*, and Schmit (US 2003/0004670) *supra*.

Regarding claim 39, Johnson/Gray teaches every limitation of claim 39 except modifying at least one of the hardware object and the software object. Schmit teaches a system and method for building a measurement system in which the most efficient protocol to use with each measurement device is determined and applied (see Schmit paragraph [0500]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the hardware protocol selection system of Schmit with the invention of Johnson/Gray for the purpose of making the measurement system more efficient.

Regarding claim 40, Johnson/Gray/Schmit teaches that modifying specifies a protocol for use by the hardware object for communication with the hardware device (see Schmit paragraph [0500]).

Regarding claim 43, Johnson/Gray/Schmidt teaches generating an analysis object that can be used in SIMULINK (see Schmit paragraph [0619]).

Claims 53 and 54 recite a system with substantially the same limitations as claims 39 and 40. Therefore, claims 53 and 54 are rejected under the same rationale.

Claims 41, 42, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra*, Gray (US 6,185,491) *supra*, and Pike (US 2003/0056018) *supra*.

Regarding claim 41, Johnson/Gray teaches every limitation of claim 41 except that modifying modifies a value stored in an array of an array-based environment. Pike teaches a system for linking users to control instruments wherein an array-based environment can be used to change the properties of the control instruments (see Pike paragraph [0010]; *"The user may also create an object array in response to an array creation command. The object array includes as elements, a first and a second instrument object. The user may change the properties of the first and second communication channels by changing properties of the object array"*; see also Pike paragraph [0070]; *"The array-based environment 104 includes functions used by the user 30 to create an instrument object 108 through function calls 46, as well as to configure an instrument object's properties and to connect the instrument object with*

one of the control instruments 22"). Pike further teaches that the graphical user

interface can be used to export data to an array-based environment such as MATLAB

(see paragraph [0040]; *"User 30 may send a list of requests or commands to processor*

20 from the GUI 14 to establish a communication channel between the computer 12 and

the control instruments 22. The user 30 does so by writing a user program 80, which

resides in memory 26 of computer 12. The user program 80 may be associated with the

syntax of, for example, any interpreted programming environment. An interpreted

programming environment may be any proprietary program that performs mathematical

computations for modeling, simulation, graphics, or data analysis related to control

instruments, among many others. An example of an interpreted programming

environment is MATLAB.RTM. from MathWorks, Inc., of Natick, Mass"). It would have

been obvious to a person of ordinary skill in the art at the time the invention was made

to combine the array-based environment steps of Pike with the measurement systems

of Johnson/Gray in order to provide array-based control of the measurement devices.

Regarding claim 42, Johnson/Gray teaches every limitation of claim 42 except

generating an analysis object so that the analysis object can be used in MATLAB. Pike

teaches that the graphical user interface can be used to export data to an array-based

environment such as MATLAB (see paragraph [0040]; *"User 30 may send a list of*

requests or commands to processor 20 from the GUI 14 to establish a communication

channel between the computer 12 and the control instruments 22. The user 30 does so

by writing a user program 80, which resides in memory 26 of computer 12. The user

program 80 may be associated with the syntax of, for example, any interpreted

programming environment. An interpreted programming environment may be any

proprietary program that performs mathematical computations for modeling, simulation,

graphics, or data analysis related to control instruments, among many others. An

example of an interpreted programming environment is MATLAB.RTM. from

MathWorks, Inc., of Natick, Mass"). It would have been obvious to a person of ordinary

skill in the art at the time the invention was made to provide MATLAB support as taught

by Pike to the measurement systems of Johnson/Gray in order to provide MATLAB

support for the measurement devices.

Claim 55 recites a system having substantially the same limitations as claim 41.

Therefore, claim 55 is rejected under the same rationale.

Response to Arguments

Applicant asserts that Johnson fails to disclose instructions for receiving, from a

user, a selection of one configuration from the plurality of configurations. The examiner

respectfully disagrees.

Johnson makes use of dropdown boxes that contain a plurality of configurations

that may be selected. For example, in Johnson Figures 19 and 20, a custom scale

configuration may be selected from the "Custom Scale' dropdown box. A user may

select one custom scale configuration from the plurality of configurations provided in the

dropdown box.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Alvesteffer whose telephone number is (571)270-1295. The examiner can normally be reached on Monday-Friday 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Bashore can be reached on (571)272-4088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stephen Alvesteffer
Examiner
Art Unit 2175

/S. A./
Examiner, Art Unit 2175

/William L. Bashore/
Supervisory Patent Examiner, Art Unit 2175